



z/OS Basic Information Center: Introduction to ISPF

Unit 2: Editing with ISPF Module 4: ISPF Editor Search Functions

```
di, 3444  
mov ax, Score  
call PrintNumber  
  
di, 219  
call DrawShape  
  
ah, 1  
call GetKey
```



```
xor di, di  
mov cx, 2000  
mov ax, 700h  
rep stosw  
  
call DrawBorders  
  
mov di, 184  
mov si, offset sNext  
call PrintText  
mov di, 272  
mov si, offset sHiScore  
call PrintText
```

```
mov al, 0- mov ah, 7  
Clear screen and set color 7  
  
mov di, 3430  
mov si, offset sStop  
call PrintText  
mov di, 450  
mov si, offset sSpeed  
call PrintText
```

```
mov di, 292  
mov ax, HiScore  
call PrintNumber  
  
mov Score, 0  
  
call ChooseGame  
  
call Rand  
mov NextShape, ax  
call NewShape  
call DrawNextShape
```



ISPF Editor Search Functions – Introduction

In this module, Searching data sets with the ISPF editor, we'll explore a number of commands that help you search for, change and exclude string data in data set members. The editor allows you to specify various types of string data, including: simple strings, delimited strings, hexadecimal strings, character strings, and picture strings.

Time to complete: 20 – 30 minutes

```

File Edit Edit.Settings Menu Utilities Compilers Test Help
EDIT SMCHUGH.TEST.COBOL (IGYBCMP) - 01.00 CHARS 'SET CMSTYPE' found
Command ==> Scroll ==> PAGE
000033
000034 "SET CMSTYPE HT"
000035 "LISTFILE IGYBCOMP CONTROL * (STACK LIFO"
000036 SRC = RC
000037 "SET CMSTYPE RT"
000038 if SRC = 0 then do
000039 say "IGYBCOMP CONTROL cannot be found."
000040 exit(rc)
000041 end
000042 do i = 1 to
000043 pull cont
000044 end
000045
000046 "COPYFILE" co
000047 if rc = 0 t
000048 say "Copy
000049 exit(rc)
000050 end
F1=Help F2=Sp11 F3=Left F4=Right F5=Cancel
F8=Down F9=Swap
06/011
  
```

ISPF Editor Search Functions – Objectives

Upon completion of this module, you should be able to:

- Find data strings in a data set member
- Change one or all occurrences of a data string in a data set member
- Define ranges to limit the scope of the FIND, CHANGE, and EXCLUDE commands
- Exclude and redisplay lines of text in a member

ISPF Editor Search Functions – Using the FIND Command to Search

You may have learned about the FIND command in the module on Working with Data Sets. You can use the FIND command to search for a specific string of characters.

Type FIND at the command line, followed by the string. If the search string contains blanks or special characters, enclose it in quotes. For example:

==> FIND "SET CMSTYPE"

The ISPF editor finds and highlights all occurrences of the target string and moves the cursor the first line that contains the string.

```

File Edit Edit_Settings Menu Utilities Compilers Test Help
EDIT SMCHUGH.TEST.COBOL (IGYBCMP) - 01.00 CHARS 'SET CMSTYPE' found
Command ==> Scroll ==> PAGE
000033
000034 "SET CMSTYPE HT"
000035 "LISTFILE IGYBCOMP CONTROL * (STACK LIFO"
000036 src = rc
000037 "SET CMSTYPE RT"
000038 if src ^= 0 then do
000039 say "IGYBCOMP CONTROL cannot be found."
000040 exit(rc)
000041 end
000042 do i = 1 to
000043 pull cont
000044 end
000045
000046 "COPYFILE" co
000047 if rc ^= 0 t
000048 say "Copy
000049 exit(rc)
000050 end
F1=Help F2=Split F3=Left F4=Right F5=Cancel
F8=Down F9=Swap
06/011
  
```

ISPF Editor Search Functions – The CHANGE Command

Use the CHANGE command to search for a string and replace it with a second string. The CHANGE command takes two strings. The first string is the target text, and the second is the replacement text.

For example, the following command:

```
====> CHANGE #globalcsi globalcsi
```

searches for the first occurrence of the target string #globalcsi and replaces it with the string globalcsi. If either the target or replacement string contains spaces or special characters, surround the string with quotes.

To replace all occurrences throughout the source member, add the keyword ALL to the end of the command. With the ALL keyword, changed lines are marked with ==CHG> in the line command area.

```
File Edit Edit_Settings Menu Utilities Compilers Test Help
EDIT SMCHUGH.TEST.COBOL (IGYWDEF) - 01.00 CHARS #globalcsi' chang
Command ==> Scroll ==> PAGE
Original text string shown here
000151 /** You can either make the changes in steps 2 through 9 *
000152 /** below by hand or by invoking the ISPF Editor macro *
000153 /** IGYWEDIT, which you copied from the product tape earlier.*
000154 /** Consult the instructions in IGYWEDIT for more information*
000155 /**
000156 /** 2) Change globalcsi1 to the dataset name of your global *
000157 /** CSI data set *
000158 /**
000159 /** 3) Change #tzone to *
000160 /** 4) Change #dzone to *
000161 /** 5) Change #hlq to the *
000162 /** 6) This job uses the *
000163 /** target libraries: *
000164 /** 7) Change #tvol to the *
000165 /** 8) Change #dvol to the *
000166 /** If you specify a volume *
000167 /** must also specify *
000168 /**
000169 /** F1=Help F2=Split F3=Exit F4=List F5=Find F6=Save F7=Delete F8=Down F9=Swap F10=Left F11=Right F12=End
000170 /**
```

ISPF Editor Search Functions – Limiting Range on FIND and CHANGE Commands

To limit the range affected by either the FIND or CHANGE command, use labels at the end of the command to identify the beginning and the end of range.

You must first assign the labels to the first line and last line of the range before using them in the FIND or CHANGE command.

To assign a label to a line, position the cursor at the line, and type the label, preceded by a period (.).

Include the period as part of the label in the FIND or CHANGE command. The following CHANGE command changes all occurrences of the string #tvol to TARGETVOL, within the lines labeled .TOPLN and .BOTLN:

```
===> CHANGE #tvol TARGETVOL ALL .TOPLN .BOTLN
```

The screenshot shows the ISPF Editor interface. The command line at the top reads: `EDIT SMCHUGH.TEST.COBOL (IGYWDDEF) - 01.00`. The command prompt shows `Command ===> CHANGE #tvol TARGETVOL ALL .TOPLN .BOTLN`. The editor displays a list of lines with labels `.TOPLN` and `.BOTLN`. A yellow box highlights the command, and arrows point to the target string `#tvol` in the command and the target string `#tvol` in the editor text. The text `CHANGE command with range limits` is displayed next to the command. The text `Target changed within range` is displayed next to the line `VOLUME (TARGETVOL)`. The text `Target unchanged outside the range` is displayed next to the line `VOLUME (#tvol)`.

ISPF Editor Search Functions – Search Keywords FIRST and LAST

To alter the direction of the search, add the keywords FIRST or LAST to the FIND or CHANGE command. The keyword FIRST means to start at the top of the source member or range and search forward. LAST indicates to start at the bottom and search backward.

In this example we have found and replaced the last occurrence of the target string #tzone with the text string TARGETZONE.

Since we did not use the keyword ALL in this command, the editor only changes the first occurrence of the target string it finds and does not change the string #tzone in any of the lines above it.

```

File Edit Edit_Settings Menu Utilities Compilers Test Help
EDIT SMCHUGH.TEST.COBOL (IGYWDDEF) - 01.00 CHARS '#tzone' changed
Command ==> Scroll ==> PAGE
001780 //SMPCNTL DD *
001790 SET BODY(TARGETZONE)
001800 ZONEEDIT DDDEF.
001810 CHANGE PATH('/usr/lpp/cobol/'*,
001820 '#PathPrefix/usr/lpp/cobol/'*).
001830 ENDZONEEDIT.
001840 /*
001850 /* =====> END OF JOB IGYWDDEF<=====
001860 //
***** Bottom of Data *****

File Edit Edit_Settings Menu Utilities
CHANGE command with LAST keyword
EDIT SMCHUGH.TEST.COBOL (IGYWDDEF) - 01.
Command ==> CHANGE #tzone TARGETZONE LAST
000151 /*
000152 /* You can either make the change
000153 /* below by hand or by invoking t
000154 /* IGYWEDIT, which you copied fro
000156 /* Consult the instructions in I0

F1=Help F2=Split F8=Down F9=Swap

```


ISPF Editor Search Functions– Additional FIND and CHANGE Command Keywords

Additional keywords help you specify exactly the kind of match desired.

If you add the keyword **WORD** to the **FIND** or **CHANGE** command, the target string must exist as a separate word, or it will not be changed. In this example, the ISPF editor found and changed the string **AVE** to **AVENUE**, but ignored the string **AVE** in the existing word **AVENUE**.

If you add the keyword **PREFIX**, the target string must be at the start of a word, and if you use the keyword **SUFFIX**, the target string must exist at the end of a word.

The image displays two screenshots of the ISPF Editor interface, illustrating the effect of the **WORD** keyword in a **CHANGE** command.

Top Screenshot: Shows the editor with the command **CHANGE AVE AVENUE WORD** entered. The target string **AVE** is highlighted in the command line. The editor displays a list of data statements. The string **AVE** in the existing word **AVENUE** was not changed, as indicated by the yellow arrow pointing to the **AVE** in the command line and the text **AVE changed to AVENUE while AVE in existing AVENUE was not changed**.

Bottom Screenshot: Shows the editor with the command **CHANGE AVE AVENUE WORD** entered. The target string **AVE** is highlighted in the command line. The editor displays a list of data statements. The string **AVE** in the existing word **AVENUE** was not changed, as indicated by the yellow arrow pointing to the **AVE** in the command line and the text **AVE changed to AVENUE while AVE in existing AVENUE was not changed**.

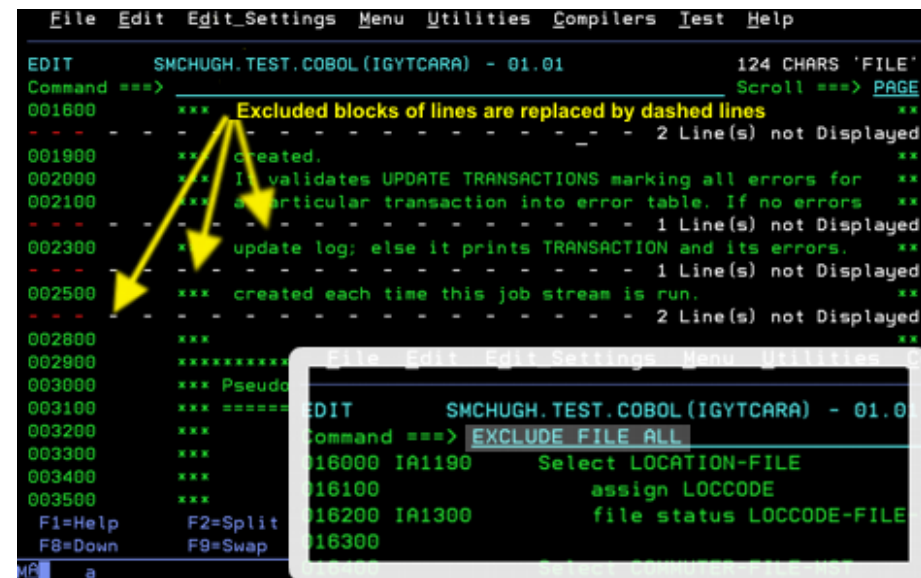
ISPF Editor Search Functions – Excluding Lines from the Search - Frame 1

To exclude lines from a search, use the EXCLUDE command before you issue the FIND or CHANGE command. For example, the command:

====> EXCLUDE FILE ALL

excludes all lines within the source that contain the string FILE. The editor no longer displays the excluded lines, but replaces them by a single dashed line that indicates how many lines are not displayed.

In the FIND or CHANGE command you can then instruct the editor to work with either excluded or the included lines. To search only the excluded lines, add X at the end of the command. To search only the included lines, add NX at the end of the command.



```

File Edit Edit_Settings Menu Utilities Compilers Test Help
EDIT SMCHUGH.TEST.COBOL (IGYTCARA) - 01.01 124 CHARS 'FILE'
Command ==> PAGE
001600 *** Excluded blocks of lines are replaced by dashed lines **
- - - - - 2 Line(s) not Displayed **
001900 *** created. **
002000 *** It validates UPDATE TRANSACTIONS marking all errors for **
002100 *** a particular transaction into error table. If no errors **
- - - - - 1 Line(s) not Displayed **
002300 *** update log; else it prints TRANSACTION and its errors. **
- - - - - 1 Line(s) not Displayed **
002500 *** created each time this job stream is run. **
- - - - - 2 Line(s) not Displayed **
002800 ***
002900 *****
003000 *** Pseudo
003100 *** =====
003200 ***
003300 ***
003400 ***
003500 ***
F1=Help F2=Split
F8=Down F9=Swap
ME a
  
```

Excluded blocks of lines are replaced by dashed lines

EDIT SMCHUGH.TEST.COBOL (IGYTCARA) - 01.01
 Command ==> EXCLUDE FILE ALL

ISPF Editor Search Functions – Excluding Lines from the Search - Frame 2

You may also exclude lines by using the exclude line command (X) in the line command area.

There are three forms of this command:

- X Excludes this line
- Xn Excludes n lines starting with this line
- XX Excludes the block of lines beginning with the first XX command

This example shows using X to exclude a single line and X2 to exclude two lines.

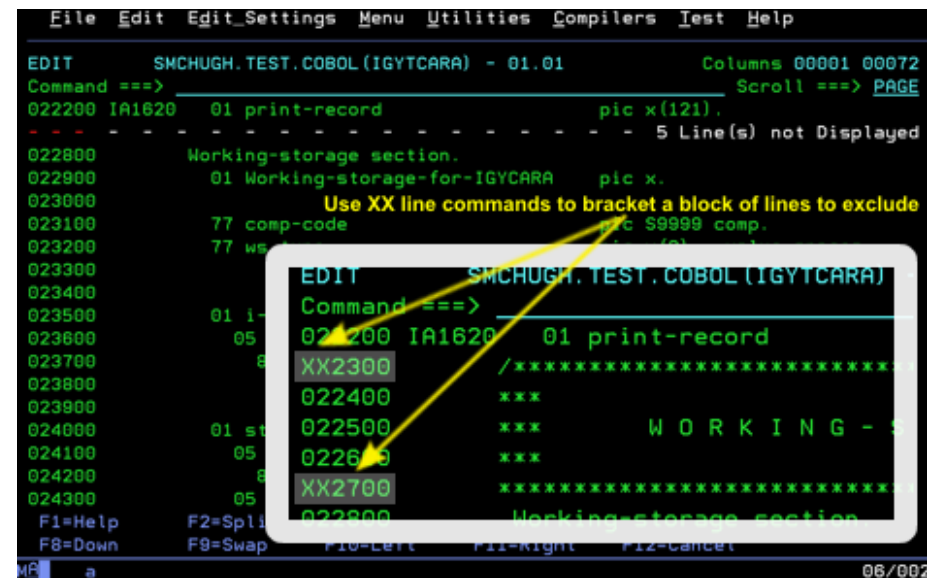
```

File Edit Edit_Settings Menu Utilities
EDIT SMCHUGH.TEST.COBOL (IGYTCARA) -
Command ==>
045000 "COMMUTER FILE UPDAT
045100 05 filler
045200 " PAGE #: "
045300 05 header-page number
045400 Typing X excludes one line
045500 01 header2-line.
- - - - - 1 Line(s) not Displayed
045700 " PROGRAM #: IGYTCARA RUN TIME: "
045800 05 header-time.
045900 10 hh
046000 10 header-edit
046100 10 mm
- - - - - Typing X2 excludes 2 lines
046400 05 header-date.
046500 10 mm
046600 10 filler
046700 10 dd
046800 10 filler
pic 99.
pic x value "/".
pic 99.
pic x value "/".
- - - - - 2 Line(s) not Displayed
F1=Help F2=Split F3=Exit F5=Rfind F6=Rchange F7=Up
F8=Down F9=Swap F10=Left F11=Right F12=Cancel
11/002
  
```

ISPF Editor Search Functions – Excluding Lines from the Search - Frame 3

Use the XX form of the exclude line command to exclude a block of lines.

For example, you might want to exclude program comments from the display, so you can edit only the code as shown here.



The screenshot displays the ISPF Editor interface for a COBOL program named SMCHUGH.TEST.COBOL (IGYTCARA). The editor shows a list of lines with line numbers on the left and code on the right. A yellow box highlights a section of the code, and a yellow arrow points to the 'XX' commands used to exclude this section. The text 'Use XX line commands to bracket a block of lines to exclude' is overlaid on the image.

```
File Edit Edit_Settings Menu Utilities Compilers Test Help
EDIT SMCHUGH.TEST.COBOL (IGYTCARA) - 01.01 Columns 00001 00072
Command ==> Scroll ==> PAGE
022200 IA1620 01 print-record pic x(121).
- - - - - 5 Line(s) not Displayed
022800 Working-storage section.
022900 01 Working-storage-for-IGYTCARA pic x.
023000 Use XX line commands to bracket a block of lines to exclude
023100 77 comp-code pic S9999 comp.
023200 77 ws
023300
023400
023500 01 i-
023600 05
023700 8
023800
023900
024000 01 st
024100 05
024200 8
024300 05
022300 /*****
022400 ***
022500 *** WORKING - S
022600 ***
022700 ****
022800 Working-storage section
```

ISPF Editor Search Functions – Redisplaying Excluded Lines - Frame 1

There are several ways to redisplay all or some of the excluded lines.

To redisplay all the excluded lines, type RESET at the command prompt, as shown here.

The screenshot shows the ISPF Editor interface. The top menu bar includes File, Edit, Edit_Settings, Menu, Utilities, Compilers, Test, and Help. The main display area shows the command prompt 'Command ==>' with 'RESET' entered. A yellow arrow points from the text 'The RESET primary command redisplay the excluded lines' to the 'RESET' command. The editor also displays the source code for 'SMCHUGH.TEST.COBOL (IGYCARA) - 01.01', including a 'WORKING-STORAGE SECTION' and a 'print-record' statement. The bottom status bar shows function key definitions: F1=Help, F2=Split, F3=Exit, F5=Rfind, F6=Rchange, F7=Up, F8=Down, F9=Swap, F10=Left, F11=Right, F12=Cancel. The date '04/015' is visible in the bottom right corner.

```

File Edit Edit_Settings Menu Utilities Compilers Test Help
EDIT SMCHUGH.TEST.COBOL (IGYCARA) - 01.01 Columns 00001 00072
Command ==> RESET Scroll ==> PAGE
022200 01 print-record pic x(121).
022300 /*****
022400 ***
022500 *** WORKING-STORAGE SECTION ***
022600 ***
022700 ****
022800 Working-storage section.
022900 01 Working-storage-for-IGYCARA pic
023000
023100
023200
023300 SMCHUGH.TEST.COBOL (IGYCARA) - 01.01 Co
023400 Command ==> RESET
023500 022200 01 print-record pic x(121).
023600 - - - - - 5 Line
023700 022600 Working-storage section.
023800 022900 01 Working-storage-for-IGYCARA pic x.
023900
F1=Help F2=Split F3=Exit F5=Rfind F6=Rchange F7=Up
F8=Down F9=Swap F10=Left F11=Right F12=Cancel
04/015
  
```

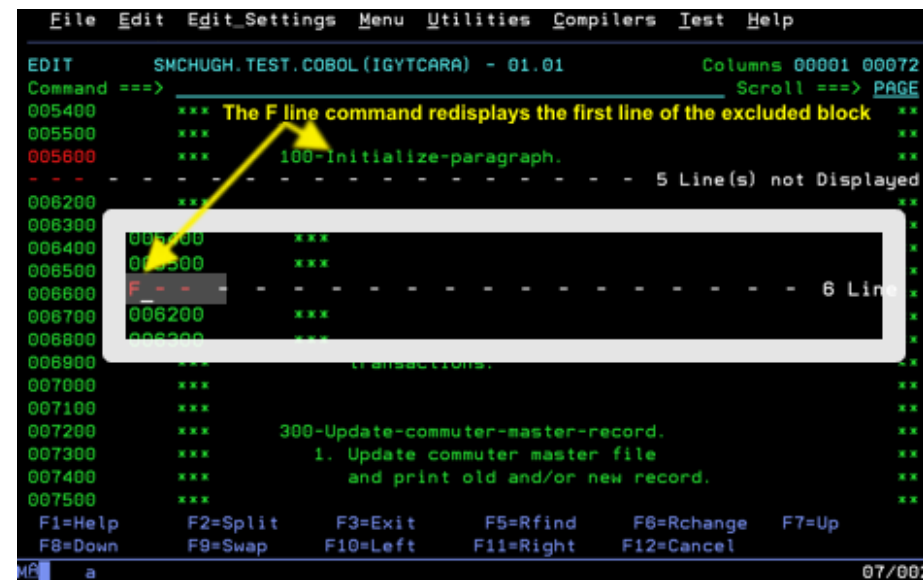
ISPF Editor Search Functions – Redisplaying Excluded Lines - Frame 2

You can also use the following line commands to redisplay specific lines of text:

- F (show the first line)
- L (show the last line)
- S (show lines)

To redisplay the first line of excluded text, type F in the line command area next to where lines were excluded, as shown in this example. To redisplay multiple lines use the command form `Fn`.

The S line command redisplay lines based on indentation level. If you type S9, the editor displays the nine lines with the left most indentation. This can be useful for lining up IF and ELSE clauses in large blocks of indented code.



The screenshot shows the ISPF Editor interface with a menu bar at the top (File, Edit, Edit_Settings, Menu, Utilities, Compilers, Test, Help). The main window displays a list of lines from a COBOL program. A yellow arrow points to the 'F' command entered in the line command area next to a line that was previously excluded. A text box with a yellow border contains the text: "The F line command redisplay the first line of the excluded block". The list of lines includes line numbers (e.g., 005400, 005500, 005600) and code snippets (e.g., "100-Initialize-paragraph.", "300-Update-commuter-master-record."). The status bar at the bottom shows "MF a" and "07/002".

ISPF Editor Search Functions – Deleting or Retaining Excluded Lines

You can use the DELETE primary command to delete either the excluded lines or the non-excluded lines from the member.

To delete the lines that have been excluded from the display, type DELETE ALL followed by X on the command line, as shown in this example.

To delete the lines that have not been excluded from the display (and thus retain only the excluded lines), type NX after the DELETE ALL primary command.

```

File Edit Edit_Settings Menu Utilities Compilers Test Help
EDIT SMCHUGH.TEST.COBOL (IGYTCARA) - 01.02
Command ==>
023800
023900
024700
024800 77 update-file-status pic xx.
024900 77 loccode-file-status pic xx.
025200 IA1730 01 flags.
025300 05 transaction-eof-flag pic x value space.
025400
025500
025600
025700
025800
025900 IA1730 01 flags.
026000
026100 77 update-file-status pic xx.
026200 77 loccode-file-status pic xx.
026300
026400
F1=Help
F8=Down
04/019
  
```

9 lines deleted

Scroll ==> PAGE

7 lines deleted here

2 lines deleted here

Total of 9 lines deleted

DELETE ALL X

7 Line

2 Line

ISPF Editor Search Functions – Shifting Indentation

The editor also provides line level commands to shift or change the indentation of one or more lines. The left parenthesis symbol shifts lines left while the right parenthesis symbol shifts lines right. The format of these commands can be:

- (shifts one line two spaces left
- (n shifts one line *n* spaces left
- ((marks the beginning and end of a block to shift two spaces left
- ((n marks the beginning of a block to shift *n* spaces left

For example, a single (shifts the line 2 positions to the left. To shift one line 8 spaces to the right, type)8 in the line command area. To mark a block of text to shift left 7 spaces, type ((7 at the first line of text and)) at the last line of text.

The screenshot shows the ISPF Editor interface with a menu bar at the top (File, Edit, Edit Settings, Menu, Utilities, Compiler, Test, Help). The main window displays a COBOL program with lines of code. A command area at the top right shows commands like 'Shift one line left' and 'Shift a block of lines left'. Yellow arrows point from these commands to specific lines in the code, demonstrating the effect of the commands.

ISPF Editor Search Functions – Summary

In this module, ISPF Editor Search Functions, you have learned how to :

- Find specific text strings in a data set member
- Change specific text strings in a data set member
- Limit the range of the FIND and CHANGE commands
- Use other keywords with the FIND and CHANGE commands
- Exclude and redisplay lines of text in the source member